

## CLAIMS

1. (Amended) A communication handover method, which is conducted when, in a communication system where a first access  
5 router pertaining to a first subnet and a second access router pertaining to a second subnet different from said first subnet are connected through an IP network, a mobile terminal connected through a radio communication to said first subnet makes connection switching from said first subnet to said  
10 second subnet, comprising:

a step in which said mobile terminal configures address information adaptable to said second subnet in a state connected to said first subnet;

a step in which said mobile terminal transmits an FBU  
15 message including said address information to said first access router;

a step in which said first access router transmits, to one of said mobile terminal and said second access router or both said mobile terminal and said second access router, an  
20 FBAck message for notifying a result of processing on said FBU message;

a step in which said second access router stores information on said FBAck message received from said first access router;

25 a step in which said first access router starts to forward

a packet, addressed to said mobile terminal, to said second access router according to the processing on said FBU message;

a step in which said second access router buffers said packet addressed to said mobile terminal and received from  
5 said first access router;

a step in which said mobile terminal carries out L2 handover for making connection switching from said first subnet to said second subnet without receiving said FBACk message from said first access router and transmits an FNA message  
10 including said FBU message to said second access router;

a step in which said second access router confirms the validity of said address information included in said FNA message;

a step in which said second access router makes a collation  
15 between said FBU message included in said FNA message and information on said FBACk message received from said first access router and stored; and

a step in which, when the information on said FBACk message corresponding to said FBU message included in said FNA message and indicative of a result of the processing on said FBU message  
20 being normal exists, said second access router makes a selection so that said FBU message included in said FNA message is not transferred.

25 2. The communication handover method according to claim 1,

comprising:

a step in which said first access router transmits an HI message including said address information to said second access router after receiving said FBU message from said mobile terminal; and

a step in which said second access router confirms the validity of said address information included in said HI message and then transmits, to said first access router, an HAcK message for making a notification to the effect that said address information is valid.

3. (Amended) A communication handover method, which is conducted when, in a communication system where a first access router pertaining to a first subnet and a second access router pertaining to a second subnet different from said first subnet are connected through an IP network, a mobile terminal connected through a radio communication to said first subnet makes connection switching from said first subnet to said second subnet, comprising:

a step in which said mobile terminal configures address information adaptable to said second subnet in a state connected to said first subnet;

a step in which said mobile terminal transmits an FBU message including said address information to said first access router;

a step in which said first access router receives said FBU message from said mobile terminal and then transmits an HI message including said address information to said second access router;

5 a step in which said second access router confirms the validity of said address information included in said HI message and then transmits, to said first access router, an HAck message for making a notification to the effect that said address information is valid;

10 a step in which said first access router transmits, to one of said mobile terminal and said second access router or both said mobile terminal and said second access router, an FBAck message for notifying a result of processing on said FBU message;

15 a step in which said second access router stores information on said FBAck message, received from said first access router, which notifies the processing result on said FBU message;

a step in which said first access router starts to forward  
20 a packet, addressed to said mobile terminal, to said second access router according to the processing on said FBU message;

a step in which said second access router buffers said packet addressed to said mobile terminal and received from said first access router;

25 a step in which said mobile terminal carries out L2

handover for making connection switching from said first subnet to said second subnet without receiving said FBAck message from said first access router and transmits an FNA message including said FBU message to said second access router;

5        a step in which said second access router makes a collation between said FBU message included in said FNA message and the information on said FBAck message received from said first access router and stored; and

10        a step in which, when the information on said FBAck message corresponding to said FBU message included in said FNA message and indicative of the processing result on said FBU message being normal exists, said second access router makes a selection so that said FBU message included in said FNA message is not transferred.

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4.        (Amended) A communication handover method, which is conducted when, in a communication system where a first access router pertaining to a first subnet and a second access router pertaining to a second subnet different from said first subnet are connected through an IP network, a mobile terminal connected through a radio communication to said first subnet makes connection switching from said first subnet to said second subnet, comprising:

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25        a step in which said mobile terminal configures address information adaptable to said second subnet in a state

connected to said first subnet;

a step in which said mobile terminal transmits an FBU message including said address information to said first access router;

5 a step in which said first access router receives said FBU message from said mobile terminal and then transmits an HI message including said address information to said second access router;

10 a step in which said second access router confirms the validity of said address information included in said HI message and then transmits, to said first access router, an HAck message for making a notification to the effect that said address information is valid;

15 a step in which said first access router transmits, to one of said mobile terminal and said second access router or both said mobile terminal and said second access router, an FBAck message for notifying a result of processing on said FBU message;

20 a step in which said second access router stores information on said FBAck message received from said first access router together with information indicative of whether or not said address information is valid;

25 a step in which said first access router starts to forward a packet, addressed to said mobile terminal, to said second access router according to the processing on said FBU message;

a step in which said second access router buffers said packet addressed to said mobile terminal and received from said first access router;

5 a step in which said mobile terminal carries out L2 handover for making connection switching from said first subnet to said second subnet without receiving said FBack message from said first access router and transmits an FNA message including said FBU message to said second access router;

10 a step in which said second access router makes a collation between said FBU message included in said FNA message and the information on said FBack message received from said first access router and stored; and

a step in which, when the information on said FBack message corresponding to said FBU message included in said FNA message  
15 and indicative of the processing result on said FBU message being normal exists and the information indicative of said address information being valid is stored in conjunction with the information on said FBack message, said second access router makes a selection so that said FBU message included  
20 in said FNA message is not transferred.

5. The communication handover method according to any one of claims 1 to 4, wherein information on a pair of transmitting side address and transmitted side address, specified at a  
25 header of said FBack message, is used as the information on

said FBAck message.

6. The communication handover method according to any one of claims 1 to 4, comprising a step in which said second access  
5 router deletes the information on said FBAck message collated with said FBU message included in said FNA message.

7. (Amended) A communication system in which a first access router pertaining to a first subnet and a second access router  
10 pertaining to a second subnet different from said first subnet are connected through an IP network and a mobile terminal makes a connection with said first subnet or said second subnet through a radio communication,

wherein said mobile terminal configures address  
15 information adaptable to said second subnet in a state connected to said first subnet,

said mobile terminal transmits an FBU message including said address information to said first access router,

said first access router transmits, to one of said mobile  
20 terminal and said second access router or both said mobile terminal and said second access router, an FBAck message for notifying a result of processing on said FBU message,

said second access router stores information on said FBAck message received from said first access router,

25 said first access router starts to forward a packet,



addressed to said mobile terminal, to said second access router according to the processing on said FBU message,

said second access router buffers said packet addressed to said mobile terminal and received from said first access  
5 router,

said mobile terminal carries out L2 handover for making connection switching from said first subnet to said second subnet without receiving said FBACk message from said first access router and transmits an FNA message including said FBU  
10 message to said second access router,

said second access router confirms the validity of said address information included in said FNA message,

said second access router makes a collation between said FBU message included in said FNA message and the information  
15 on said FBACk message received from said first access router and stored, and

when the information on said FBACk message corresponding to said FBU message included in said FNA message and indicative of the processing result on said FBU message being normal exists,  
20 said second access router makes a selection so that said FBU message included in said FNA message is not transferred.

8. The communication system according to claim 7, wherein  
said first access router transmits an HI message including  
25 said address information to said second access router after

receiving said FBU message from said mobile terminal, and  
said second access router confirms the validity of said  
address information included in said HI message and then  
transmits, to said first access router, an HAck message for  
5 making a notification to the effect that said address  
information is valid.

9. (Amended) A communication system in which a first access  
router pertaining to a first subnet and a second access router  
10 pertaining to a second subnet different from said first subnet  
are connected through an IP network and a mobile terminal makes  
a connection with said first subnet or said second subnet  
through a radio communication,

wherein said mobile terminal configures address  
15 information adaptable to said second subnet in a state  
connected to said first subnet,

said mobile terminal transmits an FBU message including  
said address information to said first access router,  
said first access router receives said FBU message from  
20 said mobile terminal and then transmits an HI message including  
said address information to said second access router,

said second access router confirms the validity of said  
address information included in said HI message and then  
transmits, to said first access router, an HAck message for  
25 making a notification to the effect that said address

information is valid,

said first access router transmits, to one of said mobile terminal and said second access router or both said mobile terminal and said second access router, an FBAck message for  
5 notifying a result of processing on said FBU message,

said second access router stores information on said FBAck message, received from said first access router, which notifies the processing result on said FBU message,

said first access router starts to forward a packet,  
10 addressed to said mobile terminal, to said second access router according to the processing on said FBU message,

said second access router buffers said packet addressed to said mobile terminal and received from said first access router,

15 said mobile terminal carries out L2 handover for making connection switching from said first subnet to said second subnet without receiving said FBAck message from said first access router and transmits an FNA message including said FBU message to said second access router,

20 said second access router makes a collation between said FBU message included in said FNA message and the information on said FBAck message received from said first access router and stored, and

when the information on said FBAck message corresponding  
25 to said FBU message included in said FNA message and indicative

of the processing result on said FBU message being normal exists, said second access router makes a selection so that said FBU message included in said FNA message is not transferred.

5 10. (Amended) A communication system in which a first access router pertaining to a first subnet and a second access router pertaining to a second subnet different from said first subnet are connected through an IP network and a mobile terminal makes a connection with said first subnet or said second subnet  
10 through a radio communication,

wherein said mobile terminal configures address information adaptable to said second subnet in a state connected to said first subnet,

said mobile terminal transmits an FBU message including  
15 said address information to said first access router,

said first access router receives said FBU message from said mobile terminal and then transmits an HI message including said address information to said second access router,

said second access router confirms the validity of said  
20 address information included in said HI message and then transmits, to said first access router, an HAck message for making a notification to the effect that said address information is valid,

said first access router transmits, to one of said mobile  
25 terminal and said second access router or both said mobile

terminal and said second access router, an FBACk message for notifying a result of processing on said FBU message,

said second access router stores information on said FBACk message received from said first access router together with  
5 information indicative of whether or not said address information is valid,

said first access router starts to forward a packet, addressed to said mobile terminal, to said second access router according to the processing on said FBU message,

10 said second access router buffers said packet addressed to said mobile terminal and received from said first access router,

said mobile terminal carries out L2 handover for making connection switching from said first subnet to said second  
15 subnet without receiving said FBACk message from said first access router and transmits an FNA message including said FBU message to said second access router,

said second access router makes a collation between said FBU message included in said FNA message and the information  
20 on said FBACk message received from the said access router and stored, and

when the information on said FBACk message corresponding to said FBU message included in said FNA message and indicative of the processing result on said FBU message exists and the  
25 information indicative of said address information being valid

is stored in conjunction with the information on said FBAck message, said second access router makes a selection so that said FBU message included in said FNA message is not transferred.

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11. The communication system according to any one of claims 7 to 10, wherein information on a pair of transmitting side address and transmitted side address, specified at a header of said FBAck message, is used as the information on said FBAck message.

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12. The communication system according to any one of claims 7 to 10, wherein said second access router deletes the information on said FBAck message collated with said FBU message included in said FNA message.

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13. (Amended) A communication message processing method, which is conducted in a second access router when, in a communication system where a first access router pertaining to a first subnet and said second access router pertaining to a second subnet different from said first subnet are connected through an IP network, a mobile terminal connected through a radio communication to said first subnet makes connection switching from said first subnet to said second subnet, comprising:

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a step of receiving, from said first access router, an FBAck message which is a response message to an FBU message including address information configured by said mobile terminal and adaptable to said second subnet;

5 a step of storing information on said FBAck message received from said first access router;

a step of buffering a packet addressed to said mobile terminal and sent by packet forwarding to said mobile terminal which is started in accordance with processing on said FBU  
10 message;

a step of receiving an FNA message including said FBU message from said mobile terminal which carries out L2 handover for connection switching from said first subnet to said second subnet;

15 a step of confirming the validity of said address information included in said FNA message;

a step of making a collation between said FBU message included in said FNA message and the information on said FBAck message received from said first access router and stored;  
20 and

a step of, when the information on said FBAck message corresponding to said FBU message included in said FNA message and indicative of a result of the processing on said FBU message being normal exists, making a selection so that said FBU message  
25 included in said FNA message is not transferred.

14. The communication message processing method according to claim 13, comprising:

5 a step of receiving an HI message including said address information from said first access router; and

a step of confirming the validity of said address information included in said HI message and then transmitting, to said first access router, an HAck for making a notification to the effect that said address information is valid.

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15. (Amended) A communication message processing method, which is conducted in a second access router when, in a communication system where a first access router pertaining to a first subnet and said second access router pertaining to a second subnet different from said first subnet are connected through an IP network, a mobile terminal connected through a radio communication to said first subnet makes connection switching from said first subnet to said second subnet, comprising:

20 a step of receiving, from said first access router, an HI message including address information configured by said mobile terminal and adaptable to said second subnet;

a step of confirming the validity of said address information included in said HI message and then transmitting, to said first access router, an HAck message for making a

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notification to the effect that said address information is valid;

a step of receiving, from said first access router, an FBAck message which is a response to said FBU message;

5 a step of storing information on said FBAck message, received from said first access router, which notifies a result of processing on said FBU message;

a step of buffering a packet addressed to said mobile terminal and sent by forwarding said packet to said mobile  
10 terminal which is started in accordance with the processing on said FBU message;

a step of receiving an FNA message including said FBU message from said mobile terminal which carries out L2 handover for making connection switching from said first subnet to said  
15 second subnet;

a step of making a collation between said FBU message included in said FNA message and information on said FBAck message received from said first access router and stored; and

20 a step of, when the information on said FBAck message corresponding to said FBU message included in said FNA message and indicative of the processing result on said FBU message being normal exists, making a selection so that said FBU message included in said FNA message is not transferred.

16. (Amended) A communication message processing method, which is conducted in a second access router when, in a communication system where a first access router pertaining to a first subnet and said second access router pertaining to a second subnet different from said first subnet are connected through an IP network, a mobile terminal connected through a radio communication to said first subnet makes connection switching from said first subnet to said second subnet, comprising:

10       a step of receiving, from said first access router, an HI message including address information configured by said mobile terminal and adaptable to said second subnet;

15       a step of confirming the validity of said address information included in said HI message and then transmitting, to said first access router, an HAck message for making a notification to the effect that said address information is valid;

      a step of receiving, from said first access router, an FBAck message which is a response to said FBU message;

20       a step of storing information on said FBAck message received from said first access router together with information indicative of whether or not said address information is valid;

25       a step in which said first access router starts forwarding a packet, addressed to said mobile terminal, to said second

access router according to processing on said FBU message;

a step in which said second access router buffers said packet addressed to said mobile terminal and received from said first access router;

5 a step of receiving an FNA message including said FBU message from said mobile terminal which carries out L2 handover for making connection switching from said first subnet to said second subnet;

a step of making a collation between said FBU message  
10 included in said FNA message and information on said FBAck message received from said first access router and stored;  
and

a step of, when the information on said FBAck message corresponding to said FBU message included in said FNA message  
15 and indicative of a result of the processing on said FBU message being normal exists and information indicative of said address information being valid is stored in conjunction with the information on said FBAck message, making a selection so that said FBU message included in said FNA message is not  
20 transferred.

17. The communication message processing method according to any one of claims 13 to 16, wherein information on a pair of transmitting side address and transmitted side address,  
25 specified at a header of said FBAck message, is used as the

information on said FBAck message.

18. The communication message processing method according to any one of claims 13 to 16, comprising a step of deleting  
5 the information on said FBAck message collated with said FBU message included in said FNA message.

19. A communication message processing program for  
implementing said communication message processing method  
10 according to any one of claims 13 to 16 through the use of a computer.